

Applicant: Hugh P. Craig
Serial No. 09/242,388
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(c) a polymer, or a monomer which is polymerisable to yield a polymer, said polymer being crosslinkable under the action of a chemical cross-linking agent,

(d) a cross-linking agent for said polymer, the cross-linking agent being selected from carboxylated polymers, polycarboxylic acids as such and polymer fatty acids providing multiple reaction sites which lack chemical protection, the cross-linking agent having fluxing properties and being nonreactive at said sites with said polymer without the application of heat and provision of a catalyst for reaction therebetween, the cross-linking agent, not reacting with said polymer under storage conditions, and the cross-linking agent being capable of solvating

(e) metallic oxide and metallic salt catalyst which are formed by heating metallic components (a) and (b) and which promote a rapid cross-linking reaction between said polymer (c) and said cross-linking agent (d) when incorporated in said polymer, as a result of solvation of said catalyst by the cross-linking agent in the presence of heat, said composition being under storage conditions such that it does not possess a temperature sufficient for such solvating and crosslinking reaction to occur.

16. (Amended) A composition according to claim 1, further comprising a copper salt deactivator as a stability enhancer.

18. (Twice Amended) A composition for application to a dielectric substrate in a predetermined pattern and comprising, in admixture:

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(i) a metallic powder component which includes (a) a solder powder and
(b) a metal powder melting at a higher temperature than the solder powder;

(ii) a polycarboxyl compound effective as a fluxing agent for the metallic
powder component at a first elevated temperature and as a cross-linking agent for an
epoxy resin at a higher second temperature, the polycarboxyl compound being
selected from carboxylated polymers, polycarboxylic acids as such and polymer fatty
acids providing multiple reaction sites which lack chemical protection, and

(iii) an epoxy resin, which composition is at a temperature below said first
elevated temperature.

19. (Twice Amended) A composition comprising in admixture:

(i) a metallic powder component which includes (a) a solder powder and
(b) a metal powder melting at a higher temperature than the solder powder;

(ii) a polycarboxyl compound effective as a fluxing agent for the metallic
powder component at a first elevated temperature and as a cross-linking agent for an
epoxy resin at a higher second temperature, the polycarboxyl compound being
selected from carboxylated polymers, polycarboxylic acids as such and polymer fatty
acids providing multiple reaction sites which lack chemical protection, the
composition being applied to a dielectric substrate to which an epoxy resin has been
pre-applied, the composition thus applied being at a temperature below said first
elevated temperature.

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30. (Amended) A composition according to claim 18, wherein the solder powder is a tin/lead alloy.

B4
1 put
C4
31. (Amended) A composition according to claim 18, wherein metal powder (b) is copper.

B5
1 put
C5
37. (Amended) A composition according to claim 36, wherein the chelation agent is benzotriazole.

B6
1 put
C6
39. (Amended) A composition according to claim 18, wherein metal powder is copper powder and the composition additionally includes oxalyl bis benzylidene hydrazine as the anti-oxidant copper deactivating agent.

Please add the following new claims 57-67:

57. (New) A composition according to claim 19, wherein the polycarboxyl compound is thermally stable to 215°C and has an acid number greater than 200 and a viscosity less than 0.01 Pa.s (10 centipoise) at 200°C.

B7
1 put
C7
58. (New) A composition according to claim 19, wherein the polymer fatty acid is a dimer or trimer fatty acid.

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59. (New) A composition according to claim 19, wherein the carboxylated polymer is a styrene-acrylic acid copolymer.

60. (New) A composition according to claim 19, wherein the metal powder component contains up to 90% by weight of metal powder (b) and from <100 to 10% by weight of the solder powder.

61. (New) A composition according to claim 19, wherein metal powder (b) is a metal selected from Au, Ag, Cu, Zn, Al, Pd, Pt, Rh, Fe, Ni, Co, Mo, W, Be, and alloys thereof.

62. (New) A composition according to claim 19, wherein the solder powder is selected from Sn, Bi, Pb, Cd, Zn, Ga, In, Te, Hg, Sb, Tl and alloys thereof.

63. (New) A composition according to claim 19, wherein the solder powder is a tin/lead alloy.

64. (New) A composition according to claim 19, wherein the metal powder (b) is copper.

65. (New) A composition according to claim 19, wherein the metallic powder component has particles of a size less than 25 μ m.